

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.
2. Applicant's submission filed on 31 January 2011 has been entered. **Claims 1 and 3-6** are pending in the application. Response to applicant's arguments can be found at the end of this office action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

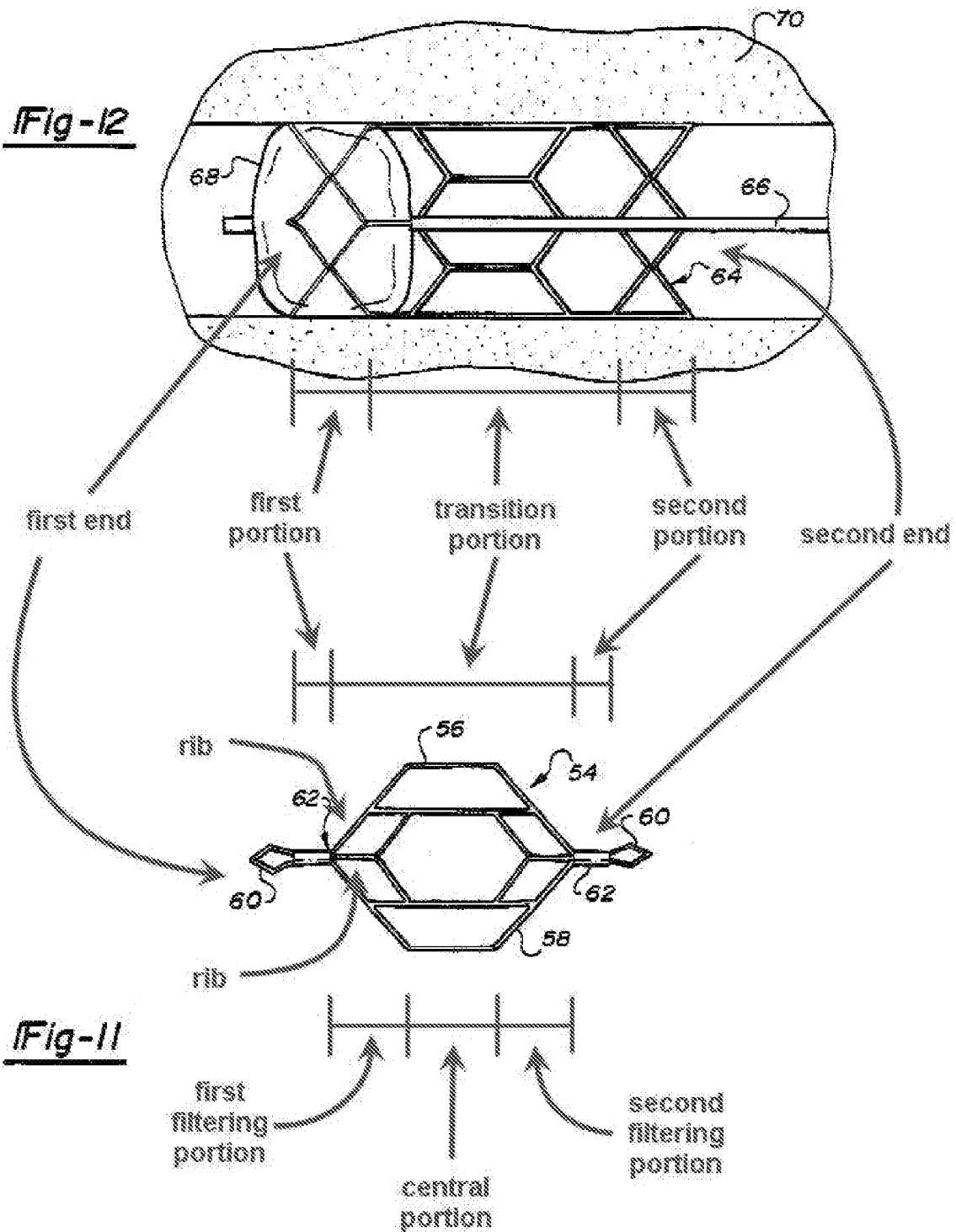
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1 and 3-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bosma et al (US Patent Number 6,267,777; hereinafter referred to as Bosma ('777)) in view of Salmon et al (US Patent Number 6,315,708) and Bosma et al (US Patent Number 6,443,972; hereinafter referred to as Bosma ('972)).

Bosma ('777) discloses a medical filter for therapeutic treatment of a patient including a first and second end defining a longitudinal axis; more than one pair of ribs extending between the first and second ends, the ribs tending to resiliently expand in

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radially outward directions from a compressed initial shape to an expanded deployed shape; wherein in the compressed initial shape, the ribs each follow a path substantially parallel to the longitudinal axis; wherein in the expanded deployed shape, the ribs each follow an undulating path, such that a first portion of each pair of ribs extends substantially adjacent to each other for a distance from the first end (i.e., within compressed portion (62)), and a second portion of each pair of ribs extends substantially adjacent to each other for a distance from the second end (i.e., within compressed portion (62)), and an intermediate portion of each one of a pair of ribs tends to curve away from each other in the expanded deployed shape; wherein in the expanded deployed shape, the filter defines a first and second filtering portion near the first and second end, respectively with a central section therebetween, the medical filter being capable of long term implantation in a patient via complete separation from a delivery catheter such that the delivery catheter may be removed, and the medical filter also comprising means (60) for capture and removal via a catheter (see annotated figures 11-12 below; column 4, line 35 – column 5, line 14).



The device of Bosma ('777) discloses the invention substantially as claimed, except for the medical filter being formed from a self-expanding thin walled tube connected to balloon-expanded thin walled tubes, instead of being formed from a single thin walled tube. Salmon et al teach forming a device from a single thin walled tube (i.e., a nitinol tube having different heat-treatments in different sections) is an equivalent structure known in the art as connecting separate tubes to provide the device with self-expanding portions and balloon-expanded portions (see column 5, lines 19-30). Therefore, since these two configurations for providing a device with self-expanding portions and balloon expanded portions were art-recognized equivalents at the time the invention was made, a person of ordinary skill in the art would have found it obvious to form the medical filter of Bosma ('777) from a single thin walled tube (with different heat-treatments in different portions of the tube) instead of connecting separate tubes, in order to achieve the predictable result of providing the filter with self-expanding portions and balloon-expanded portions. Further, forming the medical from a single tube would simplify manufacture of the device by only requiring a single element heat treated at different portions, instead of requiring multiple tubes to be connected together, such as by welding.

The modified device of Bosma ('777) in view of Salmon et al discloses the invention substantially as claimed, except for the ribs in the second portion forming a disconnected parallel structure. However, Bosma ('777) teach forming end portions of the filter device to be a disconnected structure such that the ends of the ribs touch one another (i.e., in the filtering state) but are separable (i.e., in the expanded state; see at

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least figures 3-4 and 7-9) and Bosma ('972) teach positioning ends of ribs in parallel configuration to facilitate achieving a reduced-diameter delivery profile (see at least figures 4-7). It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the device of Bosma ('777) in view of Salmon et al to have the second portion form a disconnected parallel structure where the ends of the ribs touch one another but are separable, in view of the teachings of Bosma ('777) and Bosma ('972), in order to provide the second portion with a reduced-diameter profile to facilitate delivery of the filter while allowing for the conversion of the filter to a stent defining an open through-lumen to support the blood vessel.

The modified device of Bosma ('777) in view of Salmon et al and Bosma ('972) discloses the invention substantially as claimed, except for the filter being sized for use in the vena cava. However Bosma ('777) teaches the filter device being sized for use in a blood vessel and that it was known to use filters in the vena cava of a patient (column 1, lines 15-36). It would have been obvious to a person having ordinary skill in the art at the time of the invention to size the device of Bosma ('777) in view of Salmon et al and Bosma ('972) for use in the vena cava, in order to allow the filter to capture embolic material to prevent migration of thrombus in a patient.

Regarding **claim 3**, Bosma ('777) discloses wherein in the expanded shape, a central portion of each rib tends to extend parallel to the longitudinal axis (see annotated figure 11 above).

Regarding **claim 4**, the modified device of Bosma ('777) in view of Salmon et al and Bosma ('972) discloses the invention substantially as claimed except for the filter

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having at least three pairs of ribs. However, Bosma ('777) teaches that it is within ordinary skill in the art to alter the configuration of the filter (column 4, line 62 – column 5, line 14) and a person having ordinary skill in the art would recognize that changing the number of ribs in a filter affects the filter's capability to capture material, as a matter of common sense. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the filter include at least three pairs of ribs, in order to optimize the filter's material capturing ability and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding **claim 5**, the modified device of Bosma ('777) in view of Salmon et al and Bosma ('972) discloses the invention substantially as claimed except for the filter having a certain number of pairs of ribs. However, Bosma ('777) teaches that it is within ordinary skill in the art to alter the configuration of the filter (column 4, line 62 – column 5, line 14) and a person having ordinary skill in the art would recognize that changing the number of ribs in a filter affects the filter's capability to capture material, as a matter of common sense. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the filter include six pairs of ribs, in order to optimize the filter's material capturing ability and since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding **claim 6**, Salmon et al teach the filter being made of nitinol (column 5, lines 19-26).

Response to Arguments

5. Applicant's arguments with respect to **claims 1 and 3-6** have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN A. HOLLM whose telephone number is (571) 270-7529. The examiner can normally be reached on Monday - Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, GARY JACKSON can be reached on (571) 272 - 4697. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

If there are any inquiries that are not being addressed by first contacting the Examiner or the Supervisor, you may send an email inquiry to

TC3700_Workgroup_D_Inquiries@uspto.gov.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jonathan Hollm
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Examiner, Art Unit 3734
1 February 2012

/Gary Jackson/
Supervisory Patent Examiner
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